

# PATENT ABSTRACTS OF JAPAN

(11)Publication number : 07-144597

(43)Date of publication of application : 06.06.1995

(51)Int.Cl.

B60R 21/20

(21)Application number : 05-296766

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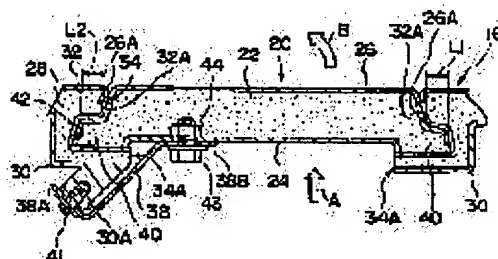
(22)Date of filing : 26.11.1993

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## (54) INSTRUMENT PANEL INTEGRAL UNIT FORMING AIR BAG DOOR

### (57)Abstract:

**PURPOSE:** To prevent an appearance quality from worsening due to aged deterioration, in an instrument panel integral unit foaming air bag door.  
**CONSTITUTION:** An air bag device is mounted on the reverse side of an instrument panel 16 arranged before a front seat in a car room. This air bag device is formed in long shape in a car width direction, and a part opposed to the air bag device of the instrument panel 16 is formed into a rectangular air bag door 20 in long shape in the car width direction. The air bag door 20 is fitted to an opening part 34 of the instrument panel 16, and a side wall part 26A of a door skin 26 is brought into contact with an internal peripheral part 32A of the instrument panel opening part 34 of an instrument panel skin 32. In a contact part with the instrument panel opening part 34 of the air bag door 20, an extension part 40 is formed toward the opening outside, to engage with a recessed part 112 formed in an internal peripheral part of the instrument panel opening part 34.



## LEGAL STATUS

[Date of request for examination] 24.09.1998

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number] 3178197

[Date of registration] 13.04.2001

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

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CLAIMS

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[Claim(s)]

[Claim 1] It is really [ instrument panel ] which is characterized by having the installation section which sets to an instrument panel foaming type the air bag door fabricated beforehand, is really [ this / instrument panel ] that carries out the foaming of the instrument panel in the state of an air bag door set prepared in the contact section with instrument panel opening of an air bag door in a foaming air bag door, and engages with an instrument panel a foaming air bag door.

[Claim 2] The instrument panel one foaming air bag door according to claim 1 characterized by having installed the air bag door insertion to the nose of cam of the aforementioned installation section, and considering as a lobe.

[Claim 3] The instrument panel one foaming air bag door according to claim 1 characterized by the engagement length of the aforementioned installation section by the side of air bag door expansion differing from the engagement length of the aforementioned installation section by the side of an air bag door center of rotation.

[Claim 4] The instrument panel one foaming air bag door according to claim 1 characterized by making it larger than the coefficient of linear expansion of an instrument panel insertion of the coefficient of linear expansion of an air bag door insertion.

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DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[Field of the Invention] this invention covers opening formed in the instrument panel, is arranged, and really [ instrument panel ] which is wide opened centering around a part with the expanding air bag bag-like object relates to a foaming air bag door.

[0002]

[Description of the Prior Art] The air bag bag-like object for taking care of the crew who sits down to the passenger seat of a vehicle bulges toward crew from opening drilled in the top of the instrument panel located ahead [ of a passenger seat / car-body ], and this opening is usually blockaded by the air bag door. It was very difficult to use this air bag door as an instrument panel and another field, and to carry out position doubling of an air bag door and the opening periphery section conventionally, so that an appearance quality may not be spoiled since an air bag door is inserted in instrument panel opening and attached.

[0003] As an example of a foaming air bag door, there is really [ instrument panel ] which improves this Japanese Patent Application No. 228825 [ five to ] which applied previously.

[0004] Really [ this / instrument panel ] that is shown in drawing 7, a foaming air bag door sets to an instrument panel foaming type the air bag door 70 fabricated beforehand, and is carrying out the foaming of the instrument panel 74 in the state of this air bag door set.

[0005]

[Problem(s) to be Solved by the Invention] However, at this air bag door 70, while epidermis 70A of the air bag door 70 moves in the deflation orientation (the arrow head V1 of drawing 7, V 2-way) by the aging, epidermis 74A of an instrument panel 74 moves in the deflation orientation (the arrow head W1 of drawing 7, W 2-way) by the aging. For this reason, a 1mm - about 2mm opening occurs into the doubling fraction 78 of the air bag door 70 and the instrument panel 74, the float of the air bag door 70, backlash, etc. occur into it, and the fault that an appearance quality deteriorates is in it.

[0006] It is the purpose that this invention really [ instrument panel ] which can prevent deterioration of the appearance quality by the aging obtains a foaming air bag door in consideration of the above-mentioned fact.

[0007]

[Means for Solving the Problem] The foaming air bag door is really [ of this invention / according to claim 1 / instrument panel ] characterized by having the installation section which sets to an instrument panel foaming type the air bag door fabricated beforehand, is really [ this / instrument panel ] that carries out the foaming of the instrument panel in the state of an air bag door set prepared in the contact section with instrument panel opening of an air bag door in a foaming air bag door, and engages with an instrument panel.

[0008] Moreover, it is characterized by for the foaming air bag door having installed the air bag door insertion to the nose of cam of the aforementioned installation section, and really [ of this invention / according to claim 2 / instrument panel ], considering as a lobe in a foaming air bag door, really [ according to claim 1 / instrument panel ].

[0009] Moreover, it is characterized by foaming air bag doors really [ of this invention / according to claim 3 / instrument panel ] differing in the engagement length of the aforementioned installation section by the side of air bag door expansion, and the engagement length of the aforementioned installation section by the side of an air bag door center of rotation in a foaming air bag door really [ according to claim 1 / instrument panel ].

[0010] Moreover, it is characterized by a foaming air bag door really [ of this invention / according to claim 4 / instrument panel ] making it larger than the coefficient of linear expansion of an instrument panel insertion of the coefficient of linear expansion of an air bag door insertion in a foaming air bag door really [ according to claim 1 / instrument panel ].

[0011]

[Function] Really [ of this invention / according to claim 1 / instrument panel ], at a foaming air bag door, since the installation section which engages with an instrument panel was prepared in the contact section with instrument panel opening of an air bag door, when the epidermis of an air bag door and the epidermis of an instrument panel contract, respectively, an air bag door is certainly held by the aging by the installation section at an instrument panel. For this reason, it is hard to generate the float of an air bag door, backlash, etc., and deterioration of the appearance quality by the aging can be prevented.

[0012] Moreover, really [ of this invention / according to claim 2 / instrument panel ], at a foaming air bag door, since the air bag door insertion which deflation by the aging seldom generates was installed to the nose of cam of the installation section and was made into the lobe, when the epidermis of an air bag door and the epidermis of an instrument panel contract, respectively, an air bag door is certainly held by the aging by the lobe at an instrument panel. For this reason, it is hard to generate the float of an air bag door, backlash, etc., and deterioration of the appearance quality by the aging can be prevented certainly.

[0013] Moreover, really [ of this invention / according to claim 3 / instrument panel ], at a foaming air bag door, since the engagement length of the installation section by the side of air bag door expansion differs from the engagement length of the

installation section by the side of an air bag door center of rotation, the modes, such as initial velocity at the time of air bag door expansion, can be set as a request by adjusting the difference of the engagement length of these installation sections at a value.

[0014] Moreover, at the instrument panel one foaming air bag door of this invention according to claim 4, since it was made larger than the coefficient of linear expansion of an instrument panel insertion of the coefficient of linear expansion of an air bag door insertion, the deflation of an air bag door at the time of low temperature becomes large compared with deflation of the door opening pars marginalis of an instrument panel, by this, bulge of the air bag door by the differential shrinkage can be prevented, and deterioration of an appearance quality can be prevented.

[0015]

[Example] A foaming air bag door is really [ of one example of this invention / instrument panel ] explained according to drawing 1 - view 3 .

[0016] It is shown in drawing 3 -- as -- the vehicle interior of a room of the car body 10 -- the background of the instrument panel 16 arranged ahead of the passenger seat 14 of 12 is equipped with the air bag equipment 18 This air bag equipment 18 is made into the shape of straight side at the cross direction, and let the fraction which counters with the air bag equipment 18 of an instrument panel 16 be the air bag door 20 of the shape of a rectangle made into the shape of straight side at the cross direction.

[0017] As shown in drawing 1 , the air bag door insertion 24 is arranged in the side (under drawing 1 ) used as the door background of the urethane foaming layer 22 of this air bag door 20. Moreover, the side-attachment-wall section of the urethane foaming layer 22 is covered with the door epidermis 26 the side (on drawing 1 ) used as the door side front of the urethane foaming layer 22 of the air bag door 20.

[0018] The instrument panel insertion 30 is arranged and the coefficient of linear expansion of the air bag door insertion 24 is greatly set to the side (under drawing 1 ) used as the instrument panel background of the urethane foaming layer 28 of an instrument panel 16 from the coefficient of linear expansion of this instrument panel insertion 30. Moreover, the inner circumference section of the instrument panel opening 34 of the urethane foaming layer 28 is covered with the instrument panel epidermis 32 the side (on drawing 1 ) used as the instrument panel side front of the urethane foaming layer 28 of an instrument panel 16.

[0019] The air bag door 20 has fitted into the instrument panel opening 34 of an instrument panel 16, and side-attachment-wall section 26A of the door epidermis 26 is in contact with inner circumference section 32A of the instrument panel opening 34 of the instrument panel epidermis 32.

[0020] As shown in drawing 2 , the installation section 40 is formed in the contact section with the instrument panel opening 34 of the air bag door 20 towards the opening outside (right-hand side of drawing 2 ). This installation section 40 consists of an urethane foaming layer 22 and door epidermis 26, and is engaging with the concavity 42 formed in the inner circumference section of the instrument panel opening 34.

[0021] As shown in drawing 1 , the installation section 40 is prepared the both sides by the side of the center of rotation of the air bag door 20 (left-hand side of drawing 1 ) the expansion side (right-hand side of drawing 1 ) of the air bag door 20. In addition, even if it forms the installation section 40 in the perimeter of the air bag door 20, you may prepare it only in an expansion side.

[0022] As shown in drawing 1 , the engagement length L1 of the installation section 40 by the side of expansion of the air bag door 20 is short a little from the engagement length L2 of the installation section 40 by the side of the center of rotation of the air bag door 20.

[0023] Inner circumference lower 34A of the instrument panel opening 34 of an instrument panel 16 has contacted, and inner circumference lower 34A of this instrument panel opening 34 consists of an urethane foaming layer 28, instrument panel epidermis 32, and instrument panel insertion 30 at the rear-face side (under drawing 1 ) of the installation section 40 of the air bag door 20.

[0024] Heights 30A of the shape of a cylinder projected aslant is formed in one side of the opening pars marginalis of the rear face of the instrument panel insertion 30, and one edge 38A of a hinge 38 is being fixed to this heights 30A on the screw 41. Other-end section 38B of a hinge 38 is being fixed to the pars marginalis of the air bag door insertion 24 with the bolt 43. In addition, the bolt 43 is screwed in the weld nut 44 fixed to the side (on drawing 1 ) used as the front face of the air bag door insertion 24.

[0025] Therefore, if the air bag bag-like object in the air bag equipment 18 develops, with an air bag bag-like object, the air bag door 20 will be pressed in the orientation of arrow head A of drawing 1 from a rear-face side, the engagement to the installation section 40 of the air bag door 20 and the concavity 42 of the instrument panel opening 34 will be canceled, and it will develop in the orientation of arrow head B of drawing 1 with a hinge 38.

[0026] Really [ of this example / instrument panel ] in addition, a foaming air bag door The air bag door 20 fabricated beforehand is set to the punch which becomes the design side side of the instrument panel foaming type instrument panel 16. Both the air bag doors 20 are covered with the instrument panel epidermis 32 as if the instrument panel epidermis 32 is set to a punch. The instrument panel insertion 30 is set to the female mold which becomes the rear-face side of the instrument panel foaming type instrument panel 16, the air bag door 20 is pinched with two molds, and urethane is poured in and fabricated in this status between the instrument panel epidermis 32 and the instrument panel insertion 30.

[0027] Next, an operation of this example is explained. Really [ of this example / instrument panel ], at a foaming air bag door, since the installation section 40 which engages with the concavity 42 of the instrument panel opening 34 was formed in the contact section with the instrument panel opening 34 of the air bag door 20, when the epidermis 26 of the air bag door 20 and the epidermis 32 of an instrument panel 16 contract, respectively, the air bag door 20 is certainly held by the aging by engagement to the installation section 40 and the concavity 42 at an instrument panel 16. For this reason, it is hard to generate the float of the air bag door 20, backlash, etc., and deterioration of the appearance quality by the aging can be prevented.

[0028] Moreover, at the foaming air bag door, the engagement length L1 of the installation section 40 by the side of expansion of the air bag door 20 is really [ of this example / instrument panel ] short a little from the engagement length L2 of the installation section 40 by the side of the center of rotation of the air bag door 20. For this reason, the expansion side of

the air bag door 20 will start the expansion burned rather than a center-of-rotation side at the time of air bag intumescence. Thus, the modes, such as initial velocity at the time of air bag door expansion, can be set as a request by adjusting the difference of the engagement length of each installation section at a value.

[0029] Moreover, really [ of this example / instrument panel ], at a foaming air bag door, from the coefficient of linear expansion of the instrument panel insertion 30, the deflation of the air bag door 20 at the time of low temperature becomes large compared with deflation of the door opening pars marginalis 34 of an instrument panel 16, since the coefficient of linear expansion of the air bag door insertion 24 is set up greatly, by this, bulge of the air bag door 20 by the differential shrinkage can be prevented, and deterioration of an appearance quality can be prevented.

[0030] In addition, as shown in drawing 4 , engagement supplementary section 30B prolonged to the installation section 40 bottom of the air bag door 20 is formed in the instrument panel insertion 30, and the air bag door 20 may be made to be held at an instrument panel 16 by this engagement supplementary section 30B, the installation section 40, and the lap (F1 of drawing 4 ) still certainly.

[0031] Moreover, in this example, although the installation section 40 of the air bag door 20 was constituted from an urethane foaming layer 22 and door epidermis 26, as it replaces with this and it is shown in drawing 5 , the air bag door insertion 24 may be installed to the nose of cam of the installation section 40, and lobe 24A may be prepared. In this case, when the epidermis 26 of the air bag door 20 and the epidermis 32 of an instrument panel 16 contract, respectively, the air bag door 20 is certainly held by the aging by lobe 24A at an instrument panel 16. For this reason, it is hard to generate the float of the air bag door 20, backlash, etc., and deterioration of the appearance quality by the aging can be prevented certainly.

[0032] Moreover, as shown in drawing 6 , the both sides of engagement supplementary section 30B of the instrument panel insertion 30 and lobe 24A of the air bag door insertion 24 are prepared, and the air bag door 20 may be made to be held at an instrument panel 16 by the lap (F2 of drawing 6 ) of engagement supplementary section 30B and lobe 24A still certainly.

[0033]

[Effect of the Invention] Really [ of this invention / according to claim 1 / instrument panel ], since a foaming air bag door has the installation section which sets to an instrument panel foaming type the air bag door fabricated beforehand, is really this / instrument panel ] that carries out the foaming of the instrument panel in the state of an air bag door set prepared in the contact section with instrument panel opening of an air bag door in a foaming air bag door, and engages with an instrument panel, it has the outstanding effect that deterioration of the appearance quality by the aging can be prevented.

[0034] Moreover, really [ of this invention / according to claim 2 / instrument panel ], since the foaming air bag door installed the air bag door insertion to the nose of cam of the installation section and considered as the lobe, it has the outstanding effect that deterioration of the appearance quality by the aging can be prevented certainly.

[0035] Moreover, really [ of this invention / according to claim 3 / instrument panel ], since the engagement length of the installation section by the side of air bag door expansion differs from the engagement length of the installation section by the side of an air bag door center of rotation, a foaming air bag door has the outstanding effect that the modes, such as initial velocity at the time of air bag door expansion, can be set as a value at a request, by adjusting the difference of the engagement length of these installation sections.

[0036] Moreover, really [ of this invention / according to claim 4 / instrument panel ], since the foaming air bag door made coefficient of linear expansion of an air bag door base material larger than the coefficient of linear expansion of an instrument panel base material, it has the outstanding effect that bulge of the air bag door by the differential shrinkage can be prevented, and deterioration of an appearance quality can be prevented.

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Field

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[Field of the Invention] this invention covers opening formed in the instrument panel, is arranged, and really [ instrument panel ] which is wide opened centering around a part with the expanding air bag bag-like object relates to a foaming air bag door.

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Technique

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[Description of the Prior Art] The air bag bag-like object for taking care of the crew who sits down to the passenger seat of a vehicle bulges toward crew from opening drilled in the top of the instrument panel located ahead [ of a passenger seat / car-body ], and this opening is usually blockaded by the air bag door. It was very difficult to use this air bag door as an instrument panel and another field, and to carry out position doubling of an air bag door and the opening periphery section conventionally, so that an appearance quality may not be spoiled since an air bag door is inserted in instrument panel opening and attached.

[0003] As an example of a foaming air bag door, there is really [ instrument panel ] which improves this Japanese Patent Application No. 228825 [ five to ] which applied previously.

[0004] Really [ this / instrument panel ] that is shown in drawing 7, a foaming air bag door sets to an instrument panel foaming type the air bag door 70 fabricated beforehand, and is carrying out the foaming of the instrument panel 74 in the state of this air bag door set.

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Effect

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[Effect of the Invention] Really [ of this invention / according to claim 1 / instrument panel ], since a foaming air bag door has the installation section which sets to an instrument panel foaming type the air bag door fabricated beforehand, is really this / instrument panel ] that carries out the foaming of the instrument panel in the state of an air bag door set prepared in the contact section with instrument panel opening of an air bag door in a foaming air bag door, and engages with an instrument panel, it has the outstanding effect that deterioration of the appearance quality by the aging can be prevented.

[0034] Moreover, really [ of this invention / according to claim 2 / instrument panel ], since the foaming air bag door installed the air bag door insertion to the nose of cam of the installation section and considered as the lobe, it has the outstanding effect that deterioration of the appearance quality by the aging can be prevented certainly.

[0035] Moreover, really [ of this invention / according to claim 3 / instrument panel ], since the engagement length of the installation section by the side of air bag door expansion differs from the engagement length of the installation section by the side of an air bag door center of rotation, a foaming air bag door has the outstanding effect that the modes, such as initial velocity at the time of air bag door expansion, can be set as a value at a request, by adjusting the difference of the engagement length of these installation sections.

[0036] Moreover, really [ of this invention / according to claim 4 / instrument panel ], since the foaming air bag door made coefficient of linear expansion of an air bag door base material larger than the coefficient of linear expansion of an instrument panel base material, it has the outstanding effect that bulge of the air bag door by the differential shrinkage can be prevented, and deterioration of an appearance quality can be prevented.

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TECHNICAL PROBLEM

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[Problem(s) to be Solved by the Invention] However, at this air bag door 70, while epidermis 70A of the air bag door 70 moves in the deflation orientation (the arrow head V1 of drawing 7, V 2-way) by the aging, epidermis 74A of an instrument panel 74 moves in the deflation orientation (the arrow head W1 of drawing 7, W 2-way) by the aging. For this reason, a 1mm - about 2mm opening occurs into the doubling fraction 78 of the air bag door 70 and the instrument panel 74, the float of the air bag door 70, backlash, etc. occur into it, and the fault that an appearance quality deteriorates is in it.

[0006] It is the purpose that this invention really [ instrument panel ] which can prevent deterioration of the appearance quality by the aging obtains a foaming air bag door in consideration of the above-mentioned fact.

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MEANS

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[Means for Solving the Problem] The foaming air bag door is really [ of this invention / according to claim 1 / instrument panel ] characterized by having the installation section which sets to an instrument panel foaming type the air bag door fabricated beforehand, is really [ this / instrument panel ] that carries out the foaming of the instrument panel in the state of an air bag door set prepared in the contact section with instrument panel opening of an air bag door in a foaming air bag door, and engages with an instrument panel.

[0008] Moreover, it is characterized by for the foaming air bag door having installed the air bag door insertion to the nose of cam of the aforementioned installation section, and really [ of this invention / according to claim 2 / instrument panel ], considering as a lobe in a foaming air bag door, really [ according to claim 1 / instrument panel ].

[0009] Moreover, it is characterized by foaming air bag doors really [ of this invention / according to claim 3 / instrument panel ] differing in the engagement length of the aforementioned installation section by the side of air bag door expansion, and the engagement length of the aforementioned installation section by the side of an air bag door center of rotation in a foaming air bag door really [ according to claim 1 / instrument panel ].

[0010] Moreover, it is characterized by a foaming air bag door really [ of this invention / according to claim 4 / instrument panel ] making it larger than the coefficient of linear expansion of an instrument panel insertion of the coefficient of linear expansion of an air bag door insertion in a foaming air bag door really [ according to claim 1 / instrument panel ].

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OPERATION

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[Function] Really [ of this invention / according to claim 1 / instrument panel ], at a foaming air bag door, since the installation section which engages with an instrument panel was prepared in the contact section with instrument panel opening of an air bag door, when the epidermis of an air bag door and the epidermis of an instrument panel contract, respectively, an air bag door is certainly held by the aging by the installation section at an instrument panel. For this reason, it is hard to generate the float of an air bag door, backlash, etc., and deterioration of the appearance quality by the aging can be prevented.

[0012] Moreover, really [ of this invention / according to claim 2 / instrument panel ], at a foaming air bag door, since the air bag door insertion which deflation by the aging seldom generates was installed to the nose of cam of the installation section and was made into the lobe, when the epidermis of an air bag door and the epidermis of an instrument panel contract, respectively, an air bag door is certainly held by the aging by the lobe at an instrument panel. For this reason, it is hard to generate the float of an air bag door, backlash, etc., and deterioration of the appearance quality by the aging can be prevented certainly.

[0013] Moreover, really [ of this invention / according to claim 3 / instrument panel ], at a foaming air bag door, since the engagement length of the installation section by the side of air bag door expansion differs from the engagement length of the installation section by the side of an air bag door center of rotation, the modes, such as initial velocity at the time of air bag door expansion, can be set as a request by adjusting the difference of the engagement length of these installation sections at a value.

[0014] Moreover, at the instrument panel one foaming air bag door of this invention according to claim 4, since it was made larger than the coefficient of linear expansion of an instrument panel insertion of the coefficient of linear expansion of an air bag door insertion, the deflation of an air bag door at the time of low temperature becomes large compared with deflation of the door opening pars marginalis of an instrument panel, by this, bulge of the air bag door by the differential shrinkage can be prevented, and deterioration of an appearance quality can be prevented.

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## EXAMPLE

[Example] A foaming air bag door is really [ of one example of this invention / instrument panel ] explained according to drawing 1 - view 3 .

[0016] It is shown in drawing 3 -- as -- the vehicle interior of a room of the car body 10 -- the background of the instrument panel 16 arranged ahead of the passenger seat 14 of 12 is equipped with the air bag equipment 18 This air bag equipment 18 is made into the shape of straight side at the cross direction, and let the fraction which counters with the air bag equipment 18 of an instrument panel 16 be the air bag door 20 of the shape of a rectangle made into the shape of straight side at the cross direction.

[0017] As shown in drawing 1 , the air bag door insertion 24 is arranged in the side (under drawing 1 ) used as the door background of the urethane foaming layer 22 of this air bag door 20. Moreover, the side-attachment-wall section of the urethane foaming layer 22 is covered with the door epidermis 26 the side (on drawing 1 ) used as the door side front of the urethane foaming layer 22 of the air bag door 20.

[0018] The instrument panel insertion 30 is arranged and the coefficient of linear expansion of the air bag door insertion 24 is greatly set to the side (under drawing 1 ) used as the instrument panel background of the urethane foaming layer 28 of an instrument panel 16 from the coefficient of linear expansion of this instrument panel insertion 30. Moreover, the inner circumference section of the instrument panel opening 34 of the urethane foaming layer 28 is covered with the instrument panel epidermis 32 the side (on drawing 1 ) used as the instrument panel side front of the urethane foaming layer 28 of an instrument panel 16.

[0019] The air bag door 20 has fitted into the instrument panel opening 34 of an instrument panel 16, and side-attachment-wall section 26A of the door epidermis 26 is in contact with inner circumference section 32A of the instrument panel opening 34 of the instrument panel epidermis 32.

[0020] As shown in drawing 2 , the installation section 40 is formed in the contact section with the instrument panel opening 34 of the air bag door 20 towards the opening outside (right-hand side of drawing 2 ). This installation section 40 consists of an urethane foaming layer 22 and door epidermis 26, and is engaging with the concavity 42 formed in the inner circumference section of the instrument panel opening 34.

[0021] As shown in drawing 1 , the installation section 40 is prepared the both sides by the side of the center of rotation of the air bag door 20 (left-hand side of drawing 1 ) the expansion side (right-hand side of drawing 1 ) of the air bag door 20. In addition, even if it forms the installation section 40 in the perimeter of the air bag door 20, you may prepare it only in an expansion side.

[0022] As shown in drawing 1 , the engagement length L1 of the installation section 40 by the side of expansion of the air bag door 20 is short a little from the engagement length L2 of the installation section 40 by the side of the center of rotation of the air bag door 20.

[0023] Inner circumference lower 34A of the instrument panel opening 34 of an instrument panel 16 has contacted, and inner circumference lower 34A of this instrument panel opening 34 consists of an urethane foaming layer 28, instrument panel epidermis 32, and instrument panel insertion 30 at the rear-face side (under drawing 1 ) of the installation section 40 of the air bag door 20.

[0024] Heights 30A of the shape of a cylinder projected aslant is formed in one side of the opening pars marginalis of the rear face of the instrument panel insertion 30, and one edge 38A of a hinge 38 is being fixed to this heights 30A on the screw 41. Other-end section 38B of a hinge 38 is being fixed to the pars marginalis of the air bag door insertion 24 with the bolt 43. In addition, the bolt 43 is screwed in the weld nut 44 fixed to the side (on drawing 1 ) used as the front face of the air bag door insertion 24.

[0025] Therefore, if the air bag bag-like object in the air bag equipment 18 develops, with an air bag bag-like object, the air bag door 20 will be pressed in the orientation of arrow head A of drawing 1 from a rear-face side, the engagement to the installation section 40 of the air bag door 20 and the concavity 42 of the instrument panel opening 34 will be canceled, and it will develop in the orientation of arrow head B of drawing 1 with a hinge 38.

[0026] Really [ of this example / instrument panel ] in addition, a foaming air bag door The air bag door 20 fabricated beforehand is set to the punch which becomes the design side side of the instrument panel foaming type instrument panel 16. Both the air bag doors 20 are covered with the instrument panel epidermis 32 as if the instrument panel epidermis 32 is set to a punch. The instrument panel insertion 30 is set to the female mold which becomes the rear-face side of the instrument panel foaming type instrument panel 16, the air bag door 20 is pinched with two molds, and urethane is poured in and fabricated in this status between the instrument panel epidermis 32 and the instrument panel insertion 30.

[0027] Next, an operation of this example is explained. Really [ of this example / instrument panel ], at a foaming air bag door, since the installation section 40 which engages with the concavity 42 of the instrument panel opening 34 was formed in the contact section with the instrument panel opening 34 of the air bag door 20, when the epidermis 26 of the air bag door 20 and the epidermis 32 of an instrument panel 16 contract, respectively, the air bag door 20 is certainly held by the aging by engagement to the installation section 40 and the concavity 42 at an instrument panel 16. For this reason, it is hard to generate the float of the air bag door 20, backlash, etc., and deterioration of the appearance quality by the aging can be

prevented.

[0028] Moreover, at the foaming air bag door, the engagement length L1 of the installation section 40 by the side of expansion of the air bag door 20 is really [ of this example / instrument panel ] short a little from the engagement length L2 of the installation section 40 by the side of the center of rotation of the air bag door 20. For this reason, the expansion side of the air bag door 20 will start the expansion burned rather than a center-of-rotation side at the time of air bag intumescence. Thus, the modes, such as initial velocity at the time of air bag door expansion, can be set as a request by adjusting the difference of the engagement length of each installation section at a value.

[0029] Moreover, really [ of this example / instrument panel ], at a foaming air bag door, from the coefficient of linear expansion of the instrument panel insertion 30, the deflation of the air bag door 20 at the time of low temperature becomes large compared with deflation of the door opening pars marginalis 34 of an instrument panel 16, since the coefficient of linear expansion of the air bag door insertion 24 is set up greatly, by this, bulge of the air bag door 20 by the differential shrinkage can be prevented, and deterioration of an appearance quality can be prevented.

[0030] In addition, as shown in drawing 4, engagement supplementary section 30B prolonged to the installation section 40 bottom of the air bag door 20 is formed in the instrument panel insertion 30, and the air bag door 20 may be made to be held at an instrument panel 16 by this engagement supplementary section 30B, the installation section 40, and the lap (F1 of drawing 4) still certainly.

[0031] Moreover, in this example, although the installation section 40 of the air bag door 20 was constituted from an urethane foaming layer 22 and door epidermis 26, as it replaces with this and it is shown in drawing 5, the air bag door insertion 24 may be installed to the nose of cam of the installation section 40, and lobe 24A may be prepared. In this case, when the epidermis 26 of the air bag door 20 and the epidermis 32 of an instrument panel 16 contract, respectively, the air bag door 20 is certainly held by the aging by lobe 24A at an instrument panel 16. For this reason, it is hard to generate the float of the air bag door 20, backlash, etc., and deterioration of the appearance quality by the aging can be prevented certainly.

[0032] Moreover, as shown in drawing 6, the both sides of engagement supplementary section 30B of the instrument panel insertion 30 and lobe 24A of the air bag door insertion 24 are prepared, and the air bag door 20 may be made to be held at an instrument panel 16 by the lap (F2 of drawing 6) of engagement supplementary section 30B and lobe 24A still certainly.

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[Translation done.]

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DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1] It is the sectional side elevation really [ of one example of this invention / instrument panel ] showing a foaming air bag door.

[Drawing 2] It is the sectional side elevation really [ of one example of this invention / instrument panel ] showing the installation section of a foaming air bag door.

[Drawing 3] It is the perspective diagram seen from the car-body slanting back which shows the car body to which the foaming air bag door was really [ of one example of this invention / instrument panel ] applied.

[Drawing 4] It is the sectional side elevation really [ of other examples of this invention / instrument panel ] showing the installation section of a foaming air bag door.

[Drawing 5] It is the sectional side elevation really [ of other examples of this invention / instrument panel ] showing the installation section of a foaming air bag door.

[Drawing 6] It is the sectional side elevation really [ of other examples of this invention / instrument panel ] showing the installation section of a foaming air bag door.

[Drawing 7] It is the sectional side elevation really [ of the conventional example / instrument panel ] showing a foaming air bag door.

[Description of Notations]

16 Instrument Panel

20 Air Bag Door

24 Air Bag Door Insertion

24A Lobe

30 Instrument Panel Insertion

34 Instrument Panel Opening

40 Installation Section

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[Translation done.]

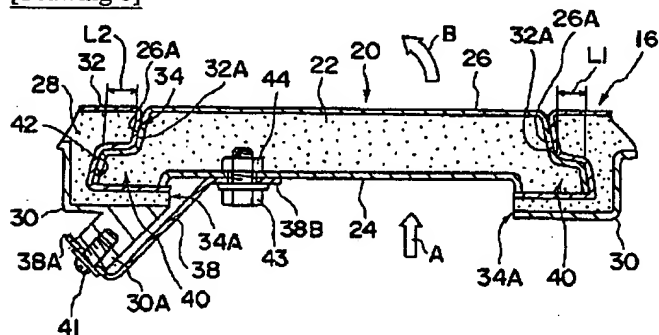
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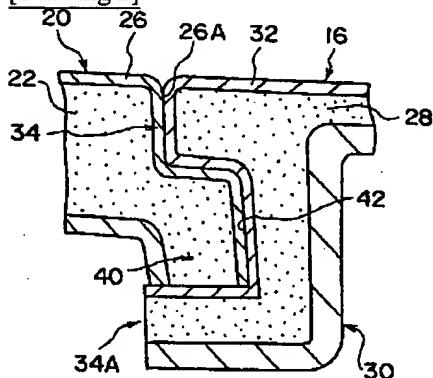
DRAWINGS

[Drawing 1]

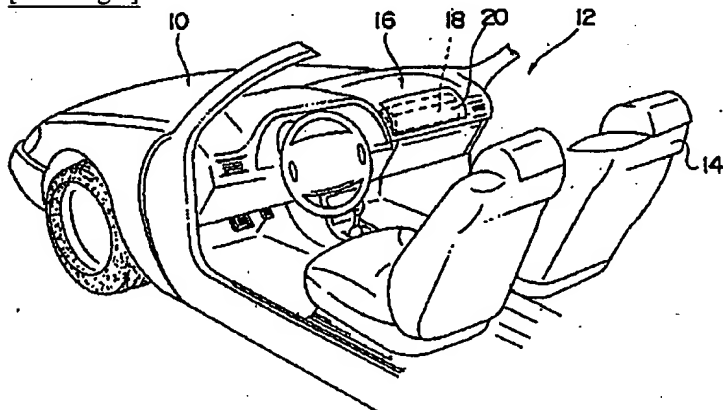


- 16 インパネ
- 20 エアバッグドア
- 24 エアバッグドアインサート
- 30 インパネインサート
- 34 インパネ開口部
- 40 延設部

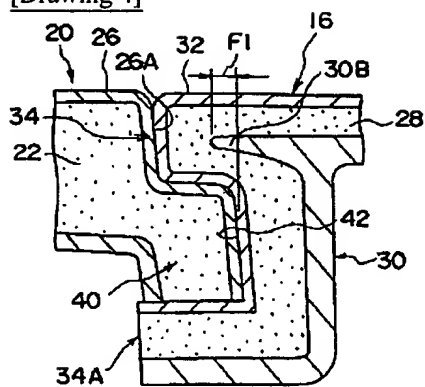
[Drawing 2]



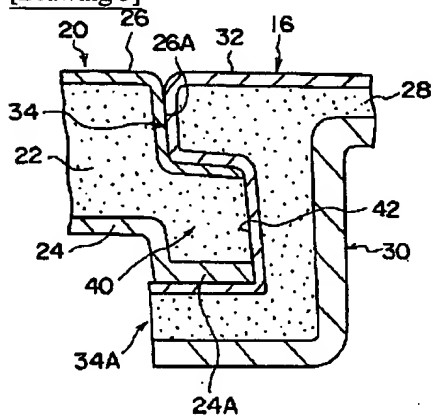
[Drawing 3]



[Drawing 4]

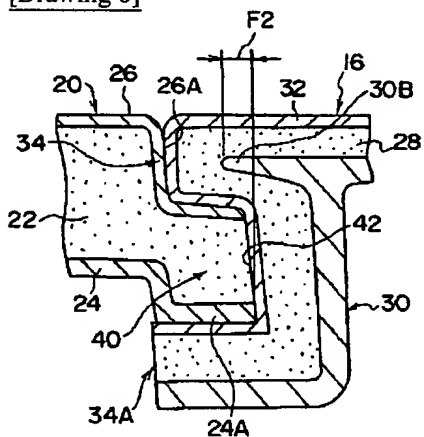


[Drawing 5]

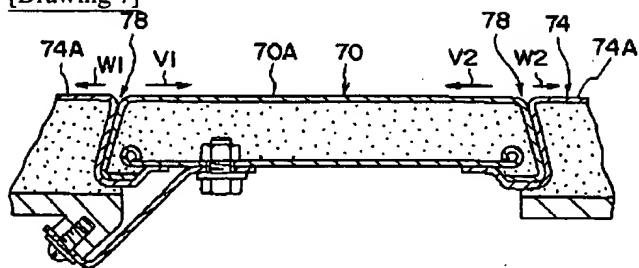


24A 突出部

[Drawing 6]



[Drawing 7]





[Translation done.]

(19) 日本国特許庁 (J P)

(12) 公開特許公報 (A)

(11) 特許出願公開番号

特開平7-144597

(43) 公開日 平成7年(1995)6月6日

(51) Int.Cl.<sup>6</sup>

B 6 0 R 21/20

識別記号

庁内整理番号

8817-3D

F I

技術表示箇所

審査請求 未請求 請求項の数 4 O L (全 6 頁)

(21) 出願番号 特願平5-296766

(22) 出願日 平成5年(1993)11月26日

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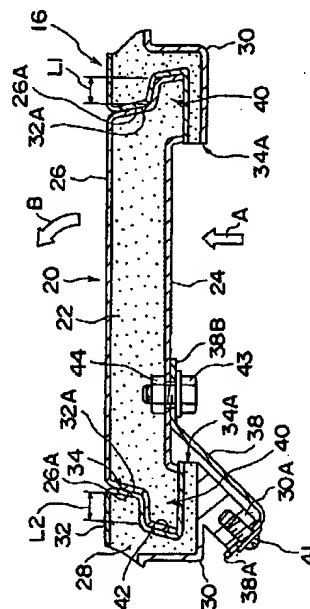
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(54) 【発明の名称】 インパネ一体発泡エアバッグドア

(57) 【要約】

【目的】 インパネ一体発泡エアバッグドアにおいて、経時変化による外観品質の低下を防止する。

【構成】 車室内の助手席の前方に配置されたインパネ16の裏側にはエアバッグ装置が装着されている。このエアバッグ装置は車幅方向に長手状とされており、インパネ16のエアバッグ装置と対向する部分は、車幅方向に長手状とされた矩形形状のエアバッグドア20とされている。エアバッグドア20はインパネ16のインパネ開口部34に嵌合しており、ドア表皮26の側壁部26Aがインパネ表皮32のインパネ開口部34の内周部32Aに当接している。エアバッグドア20のインパネ開口部34との当接部には、開口外側へ向けて延設部40が形成されており、インパネ開口部34の内周部に形成された凹部42に係合している。



16 インパネ  
20 エアバッグドア  
24 エアバッグドアエアインサート  
30 インパネインサート  
34 インパネ開口部  
40 延設部

## 【特許請求の範囲】

【請求項1】 予め成形したエアバッグドアをインパネ発泡成形型にセットし、このエアバッグドアセット状態でインパネを発泡成形するインパネ一体発泡エアバッグドアにおいて、エアバッグドアのインパネ開口部との当接部に設けられインパネに係合する延設部を有することを特徴とするインパネ一体発泡エアバッグドア。

【請求項2】 前記延設部の先端までエアバッグドアインサートを延設し突出部としたことを特徴とする請求項1記載のインパネ一体発泡エアバッグドア。

【請求項3】 エアバッグドア展開側の前記延設部の係合長さとはエアバッグドア回転中心側の前記延設部の係合長さが異なることを特徴とする請求項1記載のインパネ一体発泡エアバッグドア。

【請求項4】 エアバッグドアインサートの線膨張係数をインパネインサートの線膨張係数より大きくしたことを特徴とする請求項1記載のインパネ一体発泡エアバッグドア。

## 【発明の詳細な説明】

【0001】

【産業上の利用分野】本発明はインパネに形成された開口を覆って配置され、膨張するエアバッグ袋体によって一部を軸として開放されるインパネ一体発泡エアバッグドアに関する。

【0002】

【従来の技術】車両の助手席に着座する乗員を保護するためのエアバッグ袋体は、助手席の車体前方に位置するインパネの上面に穿設された開口から乗員に向かって膨出するようになっており、この開口はエアバッグドアによって通常閉塞されている。従来、このエアバッグドアは、インパネと別体とされており、エアバッグドアをインパネ開口部に嵌め込んで取付けているため、外観品質を損なわないようにエアバッグドアと開口周縁部とを位置合わせすることが極めて困難であった。

【0003】これを改善するインパネ一体発泡エアバッグドアの一例としては、先に出願した特願平5-228825号がある。

【0004】図7に示される、このインパネ一体発泡エアバッグドアは、予め成形したエアバッグドア70をインパネ発泡成形型にセットし、このエアバッグドアセット状態でインパネ74を発泡成形している。

【0005】

【発明が解決しようとする課題】しかしながら、このエアバッグドア70では、エアバッグドア70の表皮70Aが、経時変化によって、収縮方向（図7の矢印V1、V2方向）へ移動するとともに、インパネ74の表皮74Aが、経時変化によって、収縮方向（図7の矢印W1、W2方向）へ移動する。このため、エアバッグドア70とインパネ74との合わせ部分78に、1mm～2mm程度の隙間が発生し、エアバッグドア70の浮き、がた

等が発生して外観品質が低下するという不具合がある。

【0006】本発明は上記事実を考慮し、経時変化による外観品質の低下を防止できるインパネ一体発泡エアバッグドアを得ることが目的である。

【0007】

【課題を解決するための手段】本発明の請求項1記載のインパネ一体発泡エアバッグドアは、予め成形したエアバッグドアをインパネ発泡成形型にセットし、このエアバッグドアセット状態でインパネを発泡成形するインパネ一体発泡エアバッグドアにおいて、エアバッグドアのインパネ開口部との当接部に設けられインパネに係合する延設部を有することを特徴としている。

【0008】また、本発明の請求項2記載のインパネ一体発泡エアバッグドアは、請求項1記載のインパネ一体発泡エアバッグドアにおいて、前記延設部の先端までエアバッグドアインサートを延設し突出部としたことを特徴としている。

【0009】また、本発明の請求項3記載のインパネ一体発泡エアバッグドアは、請求項1記載のインパネ一体発泡エアバッグドアにおいて、エアバッグドア展開側の前記延設部の係合長さとはエアバッグドア回転中心側の前記延設部の係合長さが異なることを特徴としている。

【0010】また、本発明の請求項4記載のインパネ一体発泡エアバッグドアは、請求項1記載のインパネ一体発泡エアバッグドアにおいて、エアバッグドアインサートの線膨張係数をインパネインサートの線膨張係数より大きくしたことを特徴としている。

【0011】

【作用】本発明の請求項1記載のインパネ一体発泡エアバッグドアでは、エアバッグドアのインパネ開口部との当接部に、インパネに係合する延設部を設けたので、経時変化によって、エアバッグドアの表皮とインパネの表皮とがそれぞれ収縮した場合にも、延設部によってエアバッグドアがインパネに確実に保持される。このため、エアバッグドアの浮き、がた等が発生し難く、経時変化による外観品質の低下を防止できる。

【0012】また、本発明の請求項2記載のインパネ一体発泡エアバッグドアでは、経時変化による収縮が発生し難いエアバッグドアインサートを延設部の先端まで延設し突出部としたので、経時変化によって、エアバッグドアの表皮とインパネの表皮とがそれぞれ収縮した場合にも、突出部によってエアバッグドアがインパネに確実に保持される。このため、エアバッグドアの浮き、がた等が発生し難く、経時変化による外観品質の低下を確実に防止できる。

【0013】また、本発明の請求項3記載のインパネ一体発泡エアバッグドアでは、エアバッグドア展開側の延設部の係合長さとは、エアバッグドア回転中心側の延設部の係合長さが異なるため、これらの延設部の係合長さの差を調整することによって、エアバッグドア展開時の

初速等のモードを所望に値に設定することができる。

【0014】また、本発明の請求項4記載のインパネ一体発泡エアバッグドアでは、エアバッグドアインサートの線膨張係数をインパネインサートの線膨張係数より大きくしたので、低温時の、エアバッグドアの収縮がインパネのドア開口縁部の収縮に比べ大きくなり、これによって、収縮差によるエアバッグドアの膨出を防止することができ、外観品質の低下を防止できる。

【0015】

【実施例】本発明の一実施例のインパネ一体発泡エアバッグドアについて図1～図3に従って説明する。

【0016】図3に示される如く、車体10の車室内12の助手席14の前方に配置されたインパネ16の裏側にはエアバッグ装置18が装着されている。このエアバッグ装置18は車幅方向に長手状とされており、インパネ16のエアバッグ装置18と対向する部分は、車幅方向に長手状とされた矩形形状のエアバッグドア20とされている。

【0017】図1に示される如く、このエアバッグドア20のウレタン発泡層22のドア裏側となる側（図1の下側）には、エアバッグドアインサート24が配設されている。また、エアバッグドア20のウレタン発泡層22のドア表側となる側（図1の上側）と、ウレタン発泡層22の側壁部とが、ドア表皮26によって被覆されている。

【0018】インパネ16のウレタン発泡層28のインパネ裏側となる側（図1の下側）には、インパネインサート30が配設されており、このインパネインサート30の線膨張係数が大きく設定されている。また、インパネ16のウレタン発泡層28のインパネ表側となる側（図1の上側）と、ウレタン発泡層28のインパネ開口部34の内周部とが、インパネ表皮32によって被覆されている。

【0019】エアバッグドア20は、インパネ16のインパネ開口部34に嵌合しており、ドア表皮26の側壁部26Aが、インパネ表皮32のインパネ開口部34の内周部32Aに当接している。

【0020】図2に示される如く、エアバッグドア20のインパネ開口部34との当接部には、開口外側（図2の右側）へ向けて延設部40が形成されている。この延設部40は、ウレタン発泡層22とドア表皮26とで構成されており、インパネ開口部34の内周部に形成された凹部42に係合している。

【0021】図1に示される如く、延設部40は、エアバッグドア20の展開側（図1の右側）とエアバッグドア20の回転中心側（図1の左側）の双方に設けられている。なお、延設部40は、エアバッグドア20の全周に設けても、または、展開側のみに設けても良い。

【0022】図1に示される如く、エアバッグドア20

の展開側の延設部40の係合長さL1は、エアバッグドア20の回転中心側の延設部40の係合長さL2より若干短くなっている。

【0023】エアバッグドア20の延設部40の裏面側（図1の下側）には、インパネ16のインパネ開口部34の内周下部34Aが当接しており、このインパネ開口部34の内周下部34Aは、ウレタン発泡層28とインパネ表皮32とインパネインサート30とで構成されている。

【0024】インパネインサート30の裏面の開口縁部の一辺には、斜めに突出した円筒状の凸部30Aが形成されており、この凸部30Aには、ヒンジ38の一方の端部38Aがビス41によって固定されている。ヒンジ38の他方の端部38Bは、ボルト43によって、エアバッグドアインサート24の縁部に固定されている。なお、ボルト43は、エアバッグドアインサート24の表面となる側（図1の上側）に、固定されたウエルドナット44に螺合している。

【0025】従って、エアバッグ装置18内のエアバッグ袋体が展開すると、エアバッグ袋体によって、エアバッグドア20が裏面側から図1の矢印A方向に押圧され、エアバッグドア20の延設部40とインパネ開口部34の凹部42との係合が解除され、ヒンジ38によって、図1の矢印B方向に展開するようになっている。

【0026】なお、本実施例のインパネ一体発泡エアバッグドアは、インパネ発泡成型型のインパネ16の意匠面側となる上型に予め成形されたエアバッグドア20をセットし、インパネ表皮32を上型にセットすると共にエアバッグドア20をインパネ表皮32で覆い、インパネ発泡成型型のインパネ16の裏面側となる下型にインパネインサート30をセットし、2つの型でエアバッグドア20を挟持し、この状態で、インパネ表皮32とインパネインサート30との間に、ウレタンを注入し成形する。

【0027】次に、本実施例の作用を説明する。本実施例のインパネ一体発泡エアバッグドアでは、エアバッグドア20のインパネ開口部34との当接部に、インパネ開口部34の凹部42に係合する延設部40を設けたので、経時変化によって、エアバッグドア20の表皮26とインパネ16の表皮32とがそれぞれ収縮した場合にも、延設部40と凹部42との係合によってエアバッグドア20がインパネ16に確実に保持される。このため、エアバッグドア20の浮き、がた等が発生し難く、経時変化による外観品質の低下を防止できる。

【0028】また、本実施例のインパネ一体発泡エアバッグドアでは、エアバッグドア20の展開側の延設部40の係合長さL1がエアバッグドア20の回転中心側の延設部40の係合長さL2より若干短くなっている。このため、エアバッグ膨張時、エアバッグドア20の展開側が回転中心側よりはやく展開を開始することになる。

このように、各延設部の係合長さの差を調整することによって、エアバッグドア展開時の初速等のモードを所望に値に設定することができる。

【0029】また、本実施例のインパネ一体発泡エアバッグドアでは、インパネインサート30の線膨張係数より、エアバッグドアインサート24の線膨張係数が大きく設定されているため、低温時の、エアバッグドア20の収縮がインパネ16のドア開口縁部34の収縮に比べ大きくなり、これによって、収縮差によるエアバッグドア20の膨出を防止することができ、外観品質の低下を防止できる。

【0030】なお、図4に示される如く、インパネインサート30に、エアバッグドア20の延設部40の上側へ延びる係合補助部30Bを形成し、この係合補助部30Bと延設部40と重なり（図4のF1）によって、エアバッグドア20がインパネ16にさらに確実に保持されるようにしても良い。

【0031】また、本実施例では、エアバッグドア20の延設部40を、ウレタン発泡層22とドア表皮26とで構成したが、これに代えて、図5に示される如く、延設部40の先端までエアバッグドアインサート24を延設し突出部24Aを設けても良い。この場合には、経時変化によって、エアバッグドア20の表皮26とインパネ16の表皮32とがそれぞれ収縮した場合にも、突出部24Aによってエアバッグドア20がインパネ16に確実に保持される。このため、エアバッグドア20の浮き、がた等が発生し難く、経時変化による外観品質の低下を確実に防止できる。

【0032】また、図6に示される如く、インパネインサート30の係合補助部30Bと、エアバッグドアインサート24の突出部24Aとの双方を設け、係合補助部30Bと突出部24Aとの重なり（図6のF2）によって、エアバッグドア20がインパネ16にさらに確実に保持されるようにしても良い。

【0033】

【発明の効果】本発明の請求項1記載のインパネ一体発泡エアバッグドアは、予め成形したエアバッグドアをインパネ発泡成形型にセットし、このエアバッグドアセット状態でインパネを発泡成形するインパネ一体発泡エアバッグドアにおいて、エアバッグドアのインパネ開口部との当接部に設けられインパネに係合する延設部を有するので、経時変化による外観品質の低下を防止できるとい

【0034】また、本発明の請求項2記載のインパネ一体発泡エアバッグドアは、延設部の先端までエアバッグドアインサートを延設し突出部としたので、経時変化による外観品質の低下を確実に防止できるという優れた効果を有する。

【0035】また、本発明の請求項3記載のインパネ一体発泡エアバッグドアは、エアバッグドア展開側の延設部の係合長さとしてエアバッグドア回転中心側の延設部の係合長さとは異なるので、これらの延設部の係合長さの差を調整することによって、エアバッグドア展開時の初速等のモードを所望に値に設定することができるという優れた効果を有する。

【0036】また、本発明の請求項4記載のインパネ一体発泡エアバッグドアは、エアバッグドア基材の線膨張係数をインパネ基材の線膨張係数より大きくしたので、収縮差によるエアバッグドアの膨出を防止することができ、外観品質の低下を防止できるという優れた効果を有する。

【図面の簡単な説明】

【図1】本発明の一実施例のインパネ一体発泡エアバッグドアを示す側断面図である。

【図2】本発明の一実施例のインパネ一体発泡エアバッグドアの延設部を示す側断面図である。

【図3】本発明の一実施例のインパネ一体発泡エアバッグドアが適用された車体を示す車体斜め後方から見た斜視図である。

【図4】本発明の他の実施例のインパネ一体発泡エアバッグドアの延設部を示す側断面図である。

【図5】本発明の他の実施例のインパネ一体発泡エアバッグドアの延設部を示す側断面図である。

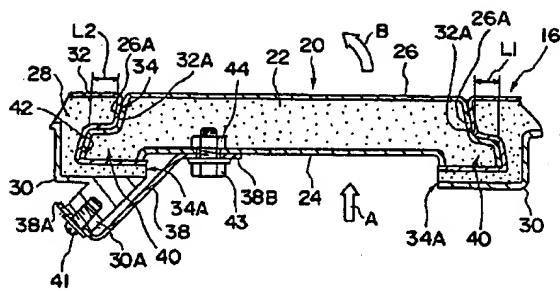
【図6】本発明の他の実施例のインパネ一体発泡エアバッグドアの延設部を示す側断面図である。

【図7】従来例のインパネ一体発泡エアバッグドアを示す側断面図である。

【符号の説明】

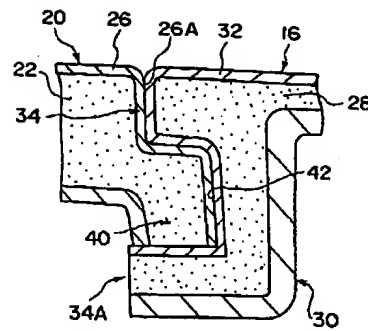
- 16 インパネ
- 20 エアバッグドア
- 24 エアバッグドアインサート
- 24A 突出部
- 30 インパネインサート
- 34 インパネ開口部
- 40 延設部

【図1】

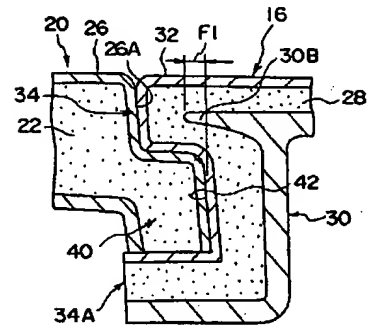


- 16 インパネ
- 20 エアバッグドア
- 24 エアバッグドアインサート
- 30 インパネインサート
- 34 インパネ開口部
- 40 延設部

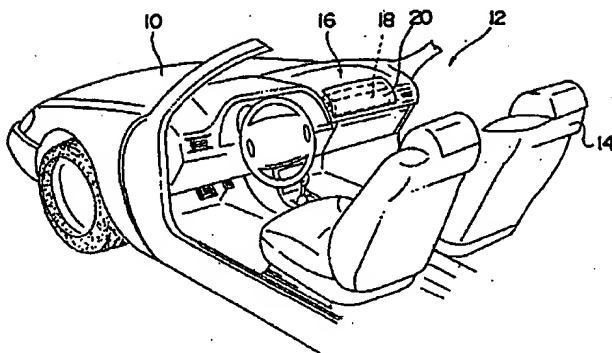
【図2】



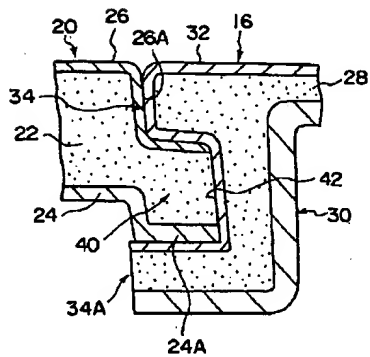
【図4】



【図3】

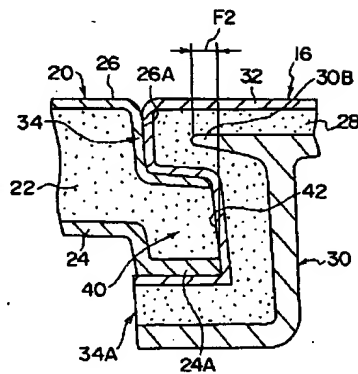


【図5】



24A 突出部

【図6】



(6)

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【図7】

